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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,692	07/30/2001	Matthew Patrick Compton	450110-03374	2191

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EXAMINER	
VILLECCO, JOHN M	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/918,692	COMPTON, MATTHEW PATRICK	
	Examiner	Art Unit	
	John M. Villecco	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 7-12* is/are rejected.

7)☒ Claim(s) *5 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed April 25, 2005 have been fully considered but they are not persuasive.

2. Applicant has amended independent claims 1 and 9 to include the limitations found in dependent claims 2 and 4. Claims 2 and 4 were indicated as being rejected based on Sobel et al. (U.S. Patent No. 6,707,937) or the combination of Sobel and Okada (U.S. Patent No. 6,133,953). Applicant argues that the combination of Sobel and Okada fails to disclose or suggest a control processor wherein "selected register elements being connected to the interpolator to provide the pixels of the received video signal for interpolation, each of the register elements being arranged to store a pixel of the received video signal and each is connected to a plurality of other register elements and is configurable under control of the control processor to feed the pixel stored in the register element to one of the plurality of other register elements in accordance with a temporal reference". The examiner, however, disagrees with this statement. It is clear from the Sobel disclosure that Sobel teaches that selected register elements (704) are connected to the interpolator to provide the pixels of the received video signal for interpolation by the linear interpolators (722, 724, 726, and 728). Furthermore, Sobel clearly teaches that the each of the register elements is connected to a plurality of other register elements. Additionally Sobel teaches that the register store (704) is configurable under control of a control processor (210) to feed pixels stored in the register elements (704) to the other register elements (col. 14, lines 47-53). In this case each register element is connected to other register elements and moved along

the shift register. The examiner is interpreting the register as being configurable since the signals are moved along the register array (704) and (706) to one of the other register elements.

Okada was brought in merely to show that it is well known in the art to move pixel charges through a register array using a temporal reference. As disclosed in column 7, lines 15-40, the pixel charges are moved from one register store to the other based on a clocking signal. In this case the temporal reference is interpreted to be the clock signal.

3. For the reasons stated above the rejections from the previous office action will be repeated with appropriate corrections to account for the amendment. Please see the rejection presented on the following pages.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 3, and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobel et al. (U.S. Patent No. 6,707,937) in view of Okada (U.S. Patent No. 6,133,953).**

6. Regarding ***claim 1***, Sobel discloses a method of interpolating edge portions of a digital image. More specifically, Sobel discloses a register array (704), a control processor (CPU, 210), and an interpolator (710). Under control by the CPU (210) the register array receives the pixel data and then provides the pixel data to the interpolator (710). The interpolator is interpreted to be the interpolator (710) and the dot product circuits (702) or the direct linear circuits (720).

Furthermore, the interpolator is coupled to the register array (704). Sobel discloses that the register array (704) includes a plurality of register elements (col. 14, line 48) that each store an individual pixel. Additionally, the system includes an edge detector (714) for detecting an edge within an image. When an edge is detected, a specific interpolation processing is carried out with respect to the pixel data. This pixel data would inherently have a horizontal and vertical component. See column 14, line 54 to column 15, line 39. When an edge is present, a specific interpolation is carried out on the pixel data. The pixel data specific to the edge is provided to the interpolator.

However, Sobel fails to explicitly disclose that the register array (704) is coupled to the other register elements and data is transferred to the other register elements based on a temporal reference. Okada, on the other hand, discloses that it is well known in the art to connect a plurality of register elements together and to transfer data to an interpolation circuit through the other register elements based upon a temporal reference. More specifically, Okada discloses a 2-D register array (30) connected to an interpolation processing circuit (34). The register array (30) includes a plurality of register elements (302-230) which hold pixel data and then transfer the pixel data to the interpolation circuit (34). Based upon a clocking signal, data is transferred between the register elements (302-320). See column 7, lines 21-40. By operating the register store in this manner the pixel data is efficiently transferred to the interpolation circuit in an appropriate fashion (4x4 array). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the register array in Sobel similarly to Okada so that the data stored in the register array is efficiently transferred to the interpolation circuit.

7. Regarding ***claim 3***, Okada discloses a plurality of delay stores (18, 20, 22) coupled in series and arranged to delay the input pixel data by one line. Furthermore each of the delay elements (18, 20, 22) outputs the video signal to a register element (302-320).

8. As for ***claim 7,*** Sobel discloses the use of a CLOCK signal for transferring the pixel data into and output of the register elements. See column 15, lines 9-27.

9. Regarding ***claim 8***, as mentioned above, Sobel discloses all of the limitations regarding claim 1. However, Sobel does not disclose that the interpolation circuit is implemented in a video camera. However, Official Notice is taken as to the fact that it is well known in the art to perform interpolation processing on image data from a video camera. Interpolation serves as an excellent way of improving the image quality. Therefore, it would have been obvious to perform the interpolation processing of Sobel in a video camera so that a higher quality image is formed.

10. ***Claim 9*** is considered a method claim corresponding to claim 1. Please see the discussion of claim 1 on the preceding pages.

11. With regard to ***claims 10 and 11***, Sobel discloses all of the limitations of claim 1. Additionally, Sobel discloses the use of a computer program, that when loaded onto the camera, carries out the interpolation processing. See column 18, lines 11-46.

12. As for ***claim 12***, Sobel discloses all of the limitations of claims 1 and 10. Additionally, Sobel discloses the use of a computer program product, in the form of a computer readable medium to carry out the interpolation processing. See column 18, lines 26-63.

Allowable Subject Matter

13. Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Regarding ***claim 5***, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest that each register element is connected to at least two of the register elements of the next column, a register element one row above of the next column, and the register element one row below of the next column.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (571) 272-7319. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ~~Wendy Garber~~ Thai Tran can be reached on (571) 272-~~7308~~ 7382. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John M. Villecco
July 15, 2005

THAI TRAN
PRIMARY EXAMINER